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ABSTRACT

As part of its continuing interest in evaluating new technological developments, including videotex, the National Library of Australia presents a synopsis of a 1981 study by Insearch Ltd. and an in-house assessment of the potential usefulness of interactive videotex services for the Australian business and library communities. The Insearch study involves demonstration of Prestel International and British Prestel to librarians or information specialists from eight libraries and three business information centers, the collection of 303 questions received at these organizations and selected as appropriate for answering on Prestel, and follow-up interviews with study participants to ascertain their reactions to videotex. Evaluation of questions collected and difficulties in study methodology are discussed. The study finds that Prestel's incomplete information base and inadequate indexing are seen as hindrances to its general reference usefulness. Further reactions to videotex, suggestions for videotex applications, comments on U.K. and U.S. library/videotex studies, and proposals for continuing research conclude this report, with a sample data collection form and an extensive bibliography provided as appendices. Following Insearch's report is a brief assessment of videotex and libraries completed by the National Library of Australia in May 1981. This appraisal finds little potential for Prestel as an information source or as a vehicle for National Library information provision, but recommends monitoring of further developments in the field. (ESR)

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DEVELOPMENT OF RESOURCE SHARING NETWORKS
NETWORKS STUDY No. 19

Videotex and Libraries

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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PREFACE

The National Library has a continuing interest in evaluating the development of existing and evolving technologies related to information storage, information handling and information dissemination. This interest stems from its need to be aware of, and to utilise, any opportunities presented by such developments to support and upgrade its present services and to develop further services where possible. The interest also stems from the Library's wish to assist the Australian library community by bringing appropriate developments to the attention of the community.

With these aims in mind, in 1980 the Library jointly funded with Telecom Australia, an evaluation by INSEARCH Ltd, which explored the concept of an interactive videotex service in a library setting and the potential usefulness of a videotex service for the Australian business community. The Library also undertook an 'inhouse' assessment to try to determine the usefulness or otherwise of videotex services as information sources for the National Library and for public libraries and as a vehicle for the Library's services and announcements.

To stimulate discussion it was the intention that the National Library's evaluation and those parts of the INSEARCH report which specifically relate to the library community, should be published.

It should be noted that whilst the evaluations were undertaken of the services available at the time on PRESTEL International and British PRESTEL it is expected that as videotex services available in Australia develop there will be a need for further studies. It should also be noted that in the months since these two assessments were prepared the pace of technological advances, such as the development of Gateway, sophisticated graphics, pictures and indexing techniques, has been rapid.

The National Library would welcome comment on these studies, though neither should be taken to be the definitive view of the National Library.

HARRISON BRYAN
DIRECTOR GENERAL
October, 1981

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ASSESSMENT AND EVALUATION

of an

INTERACTIVE VIDEOTEX SERVICE

The original report was prepared for

TELECOM AUSTRALIA

and

THE NATIONAL LIBRARY OF AUSTRALIA

by

INSEARCH, Ltd.

Project Team

Ms. M.Broward
Dr. E. Baker
Ms. S. Nielsen

Originally submitted 30 Jan. 1981

It should be noted that this report is extracted from a larger study containing proprietary information. The Synopsis indicates the scope of the total study but this report covers primarily the material relating to a videotex service in the library context.

SYNOPSIS

This study had two objectives: to explore the potential usefulness of a videotex service for the Australian business community and to explore the concept of an interactive videotex service in the library setting. The study utilised two methods which could be carried out within the constraints of time and equipment availability. The first was to conduct a series of demonstration/discussion sessions and follow-up individual interviews to ascertain reactions to various aspects of videotex services. Participants were selected on the basis of already being "information conscious" and with a view to including in a sample a wide range of business interests and types of organisations. The second method of study involved collection of questions which were received from business people and the general public at various types of libraries and business information centres. The questions were evaluated in terms of firstly, whether the existing Prestel systems were useful tools for answering the kinds of questions people asked and secondly, and more broadly, whether any videotex service would be useful in comparison to sources presently being used.

Reactions to the Prestel system were mixed. A few participants were highly enthusiastic, others thought Prestel was unnecessary (their information needs already being met satisfactorily in their opinion) and the largest group was interested but hesitant. This study found no ready market for videotex - businesses will need to be shown exactly how it could help them. Factors which seemed most likely to influence the "wait and see" majority were 1) low cost ($200 to $300 was considered acceptable for a TV decoder if ongoing costs were reasonable) 2) inclusion of information presently difficult to obtain elsewhere, such as market statistics 3) a multiplicity of databases of Australian and overseas content to provide an extensive pool of information, and 4) compatibility with other office equipment and other computer-based systems.

Participants were unanimous in expressing the need for more information relating to Australian companies and markets and for more government information. The report provides a number of specific suggestions for databases as well as comments on specialised applications of a videotex service.

Evaluation of the questions collected and supplementary discussions with librarians indicated that in the existing Prestel system the specificity needed to answer the questions was frequently lacking. The incompleteness of the information and the inadequate indexing of the content of the databases hinder their usefulness for general reference purposes.

Many of the difficulties brought out in this study are not inherent to a videotex service. With effective pre-planning and attention to overseas experiences an Australian system may avoid these weaknesses.

The critical factor for viewers in every category seemed to be the cost/benefit question - would the value of the information retrieved be worth the entry cost for equipment and the ongoing costs for usage? The critical factors for Telecom Australia, the equipment suppliers and the information providers are the marketing program and the degree of commitment and support they are willing to give one another.

Information seems destined to join in the universal esteem accorded "God, Motherhood and Apple Pie". No one dares to be against it, so everyone who participated in this study was enthusiastic about the concept of large quantities of readily available information. The unknown element is whether the individual or organisational user can relate that information to the problem-solving process.

I. GENERAL INTRODUCTION

An impressive body of writing in the form of monographs, conference proceedings and journal articles is readily available on the evolution of videotex systems overseas. Details of technical developments, trials and tribulation of database production, discussion of potential markets and grandiose future plans appear in many languages. However, research seeking to determine the information needs of the persons who would be using the system appears to be limited. This study was proposed to review the actual questions people ask when seeking information from sources outside their organisation to a specified videotex system. What does the end user want, need, expect?

I.1 PURPOSE OF THE STUDY

I.1.1 There were two objectives of the study:

a) to explore the potential usefulness of a videotex service for the Australian business community;

b) to explore the concept of a videotex service in the library setting.

I.2 SCOPE

I.2.1 Due to the limitations noted below and to the need to narrow the scope of the project, the usefulness of videotex for businesses was evaluated in two ways:

a) the relevance of the content of the databases currently supplied on Prestel International and British Prestel was assessed against a range of queries identified at a variety of collection points.

b) concurrently with this, reactions were solicited from persons in organisations considered to be "information conscious". It was expected that these persons would be more knowledgeable about available information sources and better able to articulate personal information needs.

Companies invited to participate ranged in size from one person consultancies to large multinationals. Other participants were from Business Studies faculties of tertiary institutions or from employer/professional associations.

I.2.2 The input of librarians involved in the study covered three particular aspects (in addition to their personal reactions):

a) comments on the Prestel-type database as a reference tool;

b) the type of information libraries could supply;

c) the possible benefits of establishing a Closed User Group for Libraries.

I.2.2. Libraries or Information Centres chosen to serve as data collection points for the study are listed below, together with reasons for their selection:

a) The State Library of New South Wales is the major public collection in the Sydney metropolitan area and provides a widely used free reference service to business.

b) The four municipal libaries represent a diversity of locations, subject interests, and socio/economic patterns. In the state subject allocation scheme, Bankstown is responsiblefor business information, and together with the Ryde Library, is noted for a strong interest in community information service. The Waverley Library is noted for the strength of its reference collection. Stanton Library, designated to hold the architecture subject collection, serves many architecture and engineering firms as well as North Sydney business offices.

c) The three academic libraries represent institutions with strong programs in business administration and/or economics: University of Sydney, The New South Wales Institute of Technology, and Kuring-gai College of Advanced Education.

d) Three information centres offering service primarily to for-profit corporations or government agencies were included because of the diversity of industries and services represented by their memberships: Australian Institute of Management, Sydney Chamber of Commerce, and Insearch DIAL Services.

I.2.4 Definitions are given below for the terms and abbreviations used in this study:

VIDEOTEX: used in the sense of interactive videotex, where the telephone is used to distribute computer-based information to a modified TV set.

TELETEXT: used to refer to systems using broadcast television signals.

FRAME: one screen of information.

IP: Information Provider - an organisation publishing on a videotex service.

CUG: Closed User Group - persons having access to a restricted database.

I.3 METHODOLOGY: LIBRARY COMMUNITY

Two demonstration/discussion sessions were held with librarians representing the libraries chosen to participate in the study.

I.3.1 The initial session was designed to provide background to the study and to videotex, to demonstrate the variety of business information on the two systems and to discuss data collection forms and procedures. Each library had been asked to appoint a liaison librarian for the project. However, interest was so high that a number of chief librarians and department heads also requested permission to attend, with the result that over 30 persons were crowded around one small screen. The film clip mentioned previously was especially useful with this group.

Since the study was to be conducted during an off-peak period it was decided that all questions which seemed to be candidates for answering via a videotex system would be collected, but with special emphasis on business and community information questions where possible. Procedures were outlined for the collection of the questions and for contacting the research assistant when direct answers were needed.

Each library group was given an opportunity to formulate a question and search it for themselves. The liaison librarians were responsible for reporting back to the rest of the staff and for explaining project procedures to them.

I.3.2 Data collection forms (Appendix A) were distributed to each library to record the enquiries submitted at the information/reference desks either by telephone or by personal visits by patrons. The questions were collected from the libraries by the research assistant who also answered questions for the librarians regarding the characteristics of the databases. Librarians tend to categorise reference questions by the time required to deliver an answer. Those questions which take 5 minutes or less are designated as "quick reference", those taking 5 to 15 minutes are considered general reference queries, and those which require over 15 minutes to answer are usually designated "research" questions. A number of the participating libraries keep a retrospective file of only the research type of query. Representative questions were culled from these files by the research assistant to supplement the queries received on a daily basis. A number of libraries found it difficult to get staff members to fill out the forms for quick reference queries as it often took longer to complete the form than to answer the question.

I.3.3 The second session was held following the end of the data collection period. Results of the question searches were discussed and reactions and comments were solicited. The demonstration emphasised library-related databases such as that of the British Library, the ASLIB community information file, bibliographic citations in the Economist database, etc.

I.4 CONSTRAINTS

It should be noted that a number of time and equipment constraints set the parameters within which the study was formulated.

I.4.1 Due to constant rumours of inadequate supply of both modems and terminals, Insearch was hesitant to submit a proposal

until the terminal to be used in the Prestel International market trial was actually installed and operational.

I.4.2 Discussions with Telecom indicated that a study would be of most value if it could be completed by the beginning of 1981.

I.4.3 The time period available for data collection was thus limited to 3 November to 12 December, 1980. Traditionally this is a relatively slack period for public services in libraries. Both telephone calls and foot-traffic decrease markedly. Very little research tends to be initiated during this period. (Students complete exams in tertiary institutions in early November, families are planning for the holiday season and businesses seem to be winding down their affairs before the holidays or rushing to complete projects for which the research was probably done earlier in the year). Therefore, the number of queries collected would be expected to be far less than in June or July, for example.

I.4.4 A further limitation of the study was that it was necessary for participants to extrapolate from the demonstration session to their business or library settings. Ideally, a new technology should be evaluated within its actual environment over a prolonged period, but this alternative was obviously not available. So, instead of a terminal being placed in each library (as in the ASLIB study in the U.K.) and in each business person's office, the participant had to use his/her imagination. This was one reason for concentrating on participants experienced in information retrieval.

I.4.5 Continuing transport disputes prevented at least ten persons from attending a group interview. (E.g., Kuring-gai C.A.E. faculty members confirmed bookings for three different dates but were foiled by strikes on each occasion.)

I.4.6 During the period of the study the only operational systems which were available for demonstration and data collection purposes were British Prestel and International Prestel.

II. ROLE OF VIDEOTEX IN THE LIBRARY SETTING

II.1 LIBRARIES AND COMPUTERS: THE CURRENT SITUATION

II.1.1 Computers are playing an increasingly important role in the capture, storage and retrieval of information in the nation's libraries. The National Library has recently announced plans to develop 'Australian Bibliographic Network Services' - a national online bibliographic service. CLANN in New South Wales, and TECHNILIB and CAVAL in Victoria are examples of resource-sharing network systems which have been developed for special groups of libraries. Most libraries in tertiary institutions and federal government departments rely on computers to produce fiche catalogues or serial records or to handle detailed circulation files.

II.1.2 Librarians have been the major users of online bibliographic databases in the twenty months since the introduction of OTC's MIDAS which lowered the telecommunications costs for accessing the DIALOG and ORBIT systems in the U.S. The first users of the files - long before the introduction of MIDAS - were librarians from the National Library of Australia, several major university libraries and a handful of large corporations. They were followed by librarians in other tertiary institutions,

government agencies, other large corporations, and now more slowly, by state and municipal libraries. Unfortunately, even where there is enthusiasm for implementing a computer-based search service, budget restrictions can cause delays - in late 1980 the Reference Department in the State Library of Victoria was still waiting to order its first terminal and modem. Probably less than 10% of the approximately 7,500 persons holding membership in the Library Association of Australia are currently trained as online searchers.

II.1.3 While some librarians have readily accepted the application of computer technology to library systems many of their colleagues have been unwilling to educate themselves in the use of the new technology. This ambivalence of librarians was noted in a paper prepared by Ann Wilson, Sr. Reference Librarian at the R.M.I.T. Library, for a conference in Melbourne:

"If we are not too frightened to look, the world we now live in is an exciting one. ... If we still see computers as tools then we will probably continue to use them to do traditional tasks faster and occasionally better. If we see them as part of the world we live in, we have the chance to use them not to do the same things, but to do different things, to produce systems and to offer services that we have never been able to offer before. Librarians are going to have to adapt fast to the alliance between computers and telecommunications. If we do adapt, we have a chance of extending the concept of libarianship beyond the traditional walls of the library. ... Traditional librarianship has been dealt a death blow by the arrival of the information age. The sooner we recognise that, the sooner we can change and adapt. Individual libarians and library organisations have to become involved not just in the conservation of information resources, but also in their development, management and exploitation." (1)

II.1.4 The preceding paragraphs highlight the extremes in the library environment today - from the highly automated library to the one whose available technology has not progressed beyond the manual typewriter. However, all of these libraries suffer from similar problems of staff reduction, decreased funding and inflated costs for print and non-print materials. While there may be interest in, and even enthusiasm for, exploiting new technology to develop new services, the constraints of cost, complacency and conservatism may prevail.

II.1.5 The past year has seen a rapid growth in AUSINET (the Australian bibliographic database system, comparable to DIALOG and ORBIT from the U.S.). The growth in both numbers of files and subscribers should continue to accelerate now that ACI has assumed management control for promotion and training. When MIDAS traffic becomes two-way it is expected there will be overseas access to the AUSINET files. AUSINET was originally established by and for librarians, who will continue to advise on matters of file content and construction.

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(1) 'How I Learned to Love Prestel and Stopped Worrying: Changing Professional Roles in the 1980's'. Unpub. paper by Ann D. Wilson, presented at the Jt. Conf. of the Australian Soc. of Educational Technology and the L.A.A. (Vic). May 1980.

II.2 DATA COLLECTION

In evaluating the questions collected during the study it should be remembered that input was dependent upon the understanding of the liaison librarian and the ability of that person to convey a word picture of Prestel to other staff members who were also responsible for recording the questions in each library. The difficulties of explaining exactly what is on the Prestel system are discussed elsewhere, but usually the judgment of whether a question could be answered or whether it was applicable to videotex, was made by persons who had never had an opportunity to search the system's files. Due to the fact that the pre-Christmas period is a slow period for libraries the questions collected on a daily basis were supplemented by questions culled from the retrospective files available at a number of participating libraries.

This set of questions is not to be considered either a random or a representative sample of library questions because:

a) the collection period was at the end of the academic year and near the beginning of the holiday season.

b) travel questions and possibly some others were stimulated by the demonstration sessions held prior to data collection.

c) restrospective files tend to contain the research type queries, which usually required in-depth responses.

d) the bread-and-butter quick reference queries tended to be omitted because few libraries record them.

II.2.1 Results

A total of 303 questions was collected during the six weeks period. The questions were categorised according to the general index on Prestel. The breakdown is shown in the following table:

Subject Breakdown of Queries Collected

No. of queries	Classification in the Prestel index	
	1	General Interest Information
1	1-1	News and weather
11	1-2	Sport and hobbies
4	1-3	Entertainment
33	1-4	Holidays, travel, transport
7	1-5	Market place (consumer advice)
11	1-6	Advice (medical, legal, education, family, etc.)
44	1-7	Government information
0	1-8	Employment
70	1-9	Books and reference (including general biographies, acronymns, etc.)
	1-0	Other information
1	0-1	Business
18	0-2	Local information
1	0-3	Agriculture
1	0-4	Housing and property

Cont'd. Subject Breakdown of Queries Collected

No. of queries		Classification in the Prestel index
6	0-5	Science & technology & social science (including education)
5	0-6	Food & drink
1	0-7	Charities
0	0-8	Horoscope
5	0-9	Current affairs
28	0-10	International information
	2	Business
4	2-1	Business News
2	2-2	Stocks and shares
2	2-3	Money rates and commodity prices
19	2-4	Companies, industrial sectors
15	2-5	Business services
2	2-6	Country-by-country business info.
11	2-7	Government info.
0	2-8	Money advice
2	2-9	Marketing
1	2-10	Exhibitions & Trade fairs

II.2.2 *Type of questions*

Of the 303 queries about, 75% fell within the subject categories books and reference, business, government information (federal, state, local), holiday/travel. Sample questions from each of these categories are listed below:

Books and Reference

1. Who were the first 10 Australian PM's?

2. What is the aboriginal word for chief?

3. Biographical information on Robert Stigwood.

4. Biography of Donald Crone - Centrepoint architect.

5. What is Sir Albert Salizewski's full title?

6. What is the meaning of Qango?

7. What are the ten commandments?

8. Proper form of address for an MBE.

9. Verification of whether certain named Australian authors are still living.

10. Is England considered a country by itself or is the U.K. as a whole considered the country?

The high proportion of "Australian" questions is indicative of the questions as a whole, making it difficult to transpose the question directly to the British context. To locate question #10, the library checked Webster's Geographical Dictionary, the Encyclopedia Britannica and World Book, taking 5-15 minutes to find the answer. The answer was located in 3 minutes in Prestel

and cost 2p. About one-third of the questions in this category asked for biographical information. Several libraries indicated question #9 is typical of the frequent requests to determine whether some prominent person is dead or alive.

Business

1. What is the inflation rate for Indonesia and Malaysia?

2. Trade deficit for Zimbabwe.

3. Petrol retail prices throughout the world.

4. Manufacturer and supplier of specific type of 'anti-static' treatment for carpets.

5. Number of Australian companies trading in N.Z.

6. What are late night pre-Christmas shopping hours?

7. Mileage rates re Clerks Award.

8. What is the cost of living in Australia and what are the job prospects for mechanics? (phone call from U.S.)

9. What are legal arrangements and regulations for setting up a new company?

10. List of personnel consultants, no. of staff, and turnover.

11. Current sales figures for Coca Cola Co.

12. Prime interest rates for Australian Merchant Bankers for specific dates, Mar-Je '80.

The above questions are representative of the range of quick-reference, statistical enquiries received. Question #4 was repeated for a number of different products and points up the need for directory-type information on Australian companies.

In contrast, research questions of the type listed below might require the more detailed AUSINET or DIALOG search. Typically, they would be answered by the provision of monographs or journal articles for further study by the requestor, rather than by the provision of a factual answer.

1. Incentive schemes for managers.

2. Information on types of filing systems.

3. Are there any programs for alcoholism in industry?

4. Information on computers - for purchase.

5. Information on safety programs for workers in industry.

However, in some instances basic information may be provided on videotex with cross-references or referral to sources of further information. For example, with question #5, details of health and safety codes of practice in Britain were supplied by an IP. In the Australian context the user might have been referred from the file to the relevant legislation for further details or to

specific industry associations or unions, or to the library (for a search of APAIS) to determine what local companies are doing.

Holiday/Travel

1. Cost of car hire in Chicago; cost of hiring a Citroen in Noumea in Jan.'81.

2. List of farms in Australia that take paying guests.

3. Cheap accommodation in San Francisco.

4. Times and costs of charter flights from London to Amsterdam.

5. Addresses and phone nos. of duty-free stores in Honolulu specialising in electronic goods.

6. List of hotels (and rates) in Sapporo.

7. 1st & 2nd class rail fares from Frankfurt-am-Main to London.

8. Sunrise and sunset times for San Francisco, Los Angeles & Honolulu on specific dates in March & April, 1981.

9. Distances east/west, north/south, area and population of U.S., Canada, and Australia.

There were many variations of these questions, mainly requests for transport schedules or accommodation lists.

Government Information

1. What is SAAS? SANMA?

2. Current trends in consumer expenditures.

3. Population of Australian states and capital cities.

4. Sales tax rate on cassettes and records.

5. Statistics on production and farming of soybeans in Australia.

6. Basic wage rate; savings/income ratios - in Australia.

7. How many fast food establishments have opened in Sydney in the last month? Which area in Sydney has the most "fast foods" per capita?

8. Statistics on Australian imports from Asia.

9. Name of federal Minister for Education. List of NSW State Parliamentarians.

10. Number of mechanical engineers employed in NSW Public Service.

11. Household income and expenditures for Parramatta and St. Leonards.

12. Pension rate in NSW.

13. List of child minding centres and list of nursing homes available in specific areas.

14. List of progress associations and resident action groups in North Sydney.

15. Any guitar clubs in Waverley?

Questions requiring statistical responses such as the above can usually be answered from ABS publications, or the Australian or state yearbooks. Questions 12-15 are typical community information queries. A frequent request is for a summary report of the Commission on ------ or the Committee of Inquiry on -----, or queries on locating the reports.

II.2.3 Volume of questions at libraries

The project team tried to determine the usual volume of questions asked by clients at the various types of libraries. However, there was an enormous inconsistency in the record-keeping that libraries were doing, even within one type of library. For example, some libraries exclude directional questions (e.g. Where is the card catalogue? or Where is the loo?), while other libraries establish a separate category for statistical purposes. Other libraries include such questions in their "quick reference" (or "ready reference" as it is also termed) category as an indication of the time the staff spend in contact with the public.

To gain some estimate of the total number of questions asked in the participating libraries to compare with those submitted to the project team during that period, those libraries which do not regularly keep a statistical count were asked to record the total number of queries for at least two days each week during the first two weeks in December. (Even during this special recording period some libraries included directional questions). Although libraries took the count on different days a rough approximation indicates that 1,510 questions were recorded on those four days in December, for an average of 377 questions per day. Multiplying the average daily rate by the 30 weekdays during which the study was conducted gives an approximate total of 11,000 questions for the eight participating libraries. (The three information centres did not submit statistics for total queries.)

It is evident from these figures that queries submitted during the data collection period represent only a small proportion of queries asked. However, the project team does not feel it is appropriate to interpret this statement as indicating that only a small proportion of queries at libraries could be answered on a Prestel system. Rather, we believe the proportion is low due to the lack of clear-cut understanding of what information is on the Prestel system on the part of the librarians who did not experience the system themselves. Other factors that may play a role are the lack of thoroughness in recording quick reference questions and the time of year during which data collection occurred, which may hve skewed results. For example, the academic libraries experience a drastic reduction in usage at the end of the academic year. Whereas in early October the three libraries would typically have a combined total of approximately 350 questions per day, during the December collection period their combined total was only 30 per day. In a real situation where a videotex terminal is physically present near the reference desk, actual usage would be likely to be higher.

II.2.4. Evaluation of answers

The data collection form was designed with the expectation that comparisons could be made between the evaluation of answers located in the library collection and the answers located in the Prestel IP's file. Evaluation of answers and comparison of results were hindered by several factors.

With regard to enquiries submitted to the Prestel system the lack of direct contact with the enquirer made it difficult to assess the degree of satisfaction the answer might have given. Response from the enquirer is not the only criterion used by librarians to assess the value of an answer. Other factors such as successful question analysis, the availability of files, the time allowed for searching, and other constraints are also taken into account. However, feedback from the enquirer is the most obvious measure of success and this was not possible in this study since the Prestel terminal was not located at the enquiry points.

Evaluation of answers located in the library collection generally indicated a substantial measure of success. However, a comparison of these results with those of the Prestel enquiries would be of limited use for two reasons. First, because studies have shown that librarians (and other people!) tend to assess their performance more highly than objective assessment would warrant. This is caused to some extent by the difficulty in determining the exact nature of a question and therefore assessing the relevance of the answer. Although librarians are concerned with accuracy, comprehensiveness, etc. when selecting material for answering questions, the patron's ability to articulate his question, and his low expectation of what can be obtained, impede an understanding of the exact nature of the enquiry. For example, a request for a book on surfing may be filled, but the information in the book may be irrelevant to the real information need, such as a list of surfing clubs in Brisbane. Unobtrusive studies of library performance in answering reference questions have shown the success rate to be much lower than generally supposed. (In the study by J. Schmidt, for example, the success rate was less than 50%). (1) Second, a high proportion of the queries had to be transposed from the Australian to the British context. While a relevant IP was usually found it was almost impossible to match the answer found in print.

II.2.5 Comments on the data collection segment

The categorisation of questions by the Prestel index terminology and the sample questions show that there was a match of information in broad terms. There were IPs files which were relevant but the success rate was low because the exact piece of information needed to answer the question was not included. Indeed, in many cases an incredible number of frames would have been required to reach such specificity. The study points up the problems of attempting to provide a "Paddy's Market" approach. The results seem to show that IPs and the operating body will find the service is more valuable to users if the audience is targeted and the documentation more specific about what is actually covered in the files.

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(1) Schmidt, J.B. 'A pilot study for the evaluation of reference service in Colleges of Advanced Education Libraries in New South Wales'. Project Report, Degree of Master of Librarianship, UNSW, 1979.

With hindsight it is clear that the comparative information which the form was designed to capture relative to accuracy, currency, and bias, could not be adequately measured in a study of this nature. Such a study would be possible in a controlled environment and would be a useful measure for cost comparisons.

II.3 VIDEOTEX AS A REFERENCE SOURCE

II.3.1 Scope of the database system as a whole

A major difficulty was first discovered in the briefing sessions with librarians - that is, the explanation or categorisation of the Prestel system.

Under the existing British Telecom policy no restrictions are placed on IPs or content (unless the content contravenes the usual laws of libel, etc.). Certain fields such as business and consumer information are obviously covered in some depth but a lot of miscellaneous subjects are represented in varying amounts. This situation is in contrast to most information services which are affected by an explicit policy which defines the content or scope of the service. Alternatively, the policy may be explicit, but the user gradually becomes familiar with the scope, which remains fairly stable. Continued use of the Prestel system does increase the user's knowledge of scope but the lack of an overall policy on content and the large (and varied) group of information providers who may change their database as they wish, are disconcerting characteristics for the user.

To answer a question successfully the enquirer needs to "match" the information required with the relevant source of information. This matching process is a major part of a reference librarian's or information officer's skill. It is well known that librarians prefer to use sources which have a record of consistency and accuracy. The inability to come to grips with the range and scope of the Prestel database would mitigate against its use as a general reference source by librarians or other users with general interests.

The provision of guides for specialist users would assist in retrieval of information in particular subject areas but would not contribute to its effectiveness for the general enquirer.

A recent change in British Telecom policy to place some restrictions on IPs so that preference is given to those who will "enhance" the database may eventually overcome this problem. A different approach by the national PTTs in other countries may avoid the problem altogether but so far there are no other systems for comparison.

II.3.2 Indexing/routing

The question of understanding the scope of the database and using it most effectively is related to the problems associated with the indexing and routing frames. In looking at the range of topics covered by the 303 questions collected during this study it was not too difficult to categorise them by index topics as detailed in the preceding section. However, it was frequently a lengthy exercise to track down the specific information requested, such as in the request for rates at a named hotel in the U.K. The Prestel Business Directory listed 12 IPs' files under the subject HOTELS. We found some hotels listed only under tour packages, some listed

by district (which pre-supposes a fair knowledge of the country in advance) and so forth - but not one easy alphabetical index. Another example concerns a search for a list of personnel consultants. Again, the directory lists 3 IPs under the subject PERSONNEL SERVICES. Each file is an advertisement for the individual firm; there is no directory of personnel consulting firms as such. Unless one stopped and took the time to read the printed descriptive information about each of the 3 IPs one might make the false assumption that the topic would be covered in more detail.

An apt description of the search procedure was given in an article on the German system in which the author suggested that the user should "feel around" the index to find the subject. There is an enormous variance in the routing structure, depending upon the expertise of the IP. Or perhaps the IPs suffer from a conflict of interest between getting the user to the desired information by the most direct route or by seducing the user into browsing on and on in a deliberate attempt to increase page usage.

Obvious improvements could be made by increasing the number of access points, by cross-references, or by a hierarchical classification which could avoid the problem of a single word such as EDUCATION appearing in the alphabetical index. The preparation of routes which never leave the user at a "dead end" and which provide consistency of usage will do much to alleviate the frustrations of the user (and the embarrassment of the demonstrator).

In many cases a greater amount of information could be given on the routing frames which would lead the user more quickly to the relevant "hard" information. Although no frame charges are made for routing frames, the computer connect time makes up a substantial part of the system costs and should not be contributed to by the inefficiency of the IP.

The problem of the inarticulate enquirer, as discussed in a previous section, highlights the importance of the indexing. Inadequate or ambiguous information on the routing frame hinders the enquirer or librarian in defining or refining the question.

II.4 REACTIONS, APPLICATIONS, IMPLICATIONS

II.4.1 Reactions of librarians

Reactions during the first session were cool, sceptical, and restrained. Only limited usefulness could be envisioned by most. A few saw it useful only for libraries other than their own - especially for the State Library. During the second session reactions were much more positive and accepting of the usefulness of the system. Librarians began exploring further applications beyond the quick-reference potential. While they were concerned about problems of control, costs, copyright, etc. their standpoint on it had shifted quite definitely.

Individual reactions to the format of the Prestel system were divided. Some, wishing for a more sophisticated response were critical of the time involved in making one's way through the tree structure, while others were delighted with the quick response time and the utter simplicity of use. Compared with the online systems librarians have been using for the past 20 months since the introduction of MIDAS, Prestel seems simplistic, with no

inverted files and no Boolean logic. Prestel at this stage has the same retrieval capacities as the printed book, where indexing or classification of information become all important. Hence the concern over the indexing methodology of the system.

It was noted that when computerised bibliographic databases were first introduced they were meant to make information more readily available to chemists, engineers and research scientists in their offices and laboratories. However, due to the complexity of the systems, the lack of standardisation, and the variety of vendors and equipment, as the number of databases increased the difficulties of searching increased. For the end user the frustrations connected with time consuming, unproductive searches discouraged usage of the system. For these reasons librarians and information officers often become the intermediary between the information and the end user. It is easy to develop a videotex scenario where a network of regional computer centres, each holding local data, would interface with a national computer centre, which in turn would interface with an international network. Will the poor end user again need an intermediary to help him determine where and how to look for what?

II.4.2 Applications

a) *Libraries as IPs* in the area of community and local government information seems to be a logical first target. Community and self-help type information is regarded as a very important factor in mitigating the problems of alienation and disaffiliation in modern urban society. Given the extensive work and interest among librarians in both Sydney and Melbourne in developing files of community information it should be possible to expand this effort into a resource used by all segments of the community. This type of information needs constant updating to be of any value. It is also being collected by other community agencies, but the groups have difficulty in accessing one another's files. One common system would avoid needless duplication and expense. Small business persons tend to become personally involved in "employee relations" when each employee is known as an individual. Legal, medical, social welfare, and other information in this category of community information could be very useful to the business person as well as to social workers and volunteer organisations.

b) *Closed User Groups* could be developed at several different levels (national or state) or by type of library (academic, public, etc.) or by subject interest. CUG's could be utilised for inter-library loan communication, for want lists, as a "help" line, or for in-service training programs. The Library Association could develop a CUG for membership information, as an events calendar and job hotline. The National Library might be able to extend some of the Australian Bibliographic Network services to libraries unable to obtain online access to the National Library directly. As non profit institutions libraries will need to coordinate and share resources before such programs can be implemented.

c) *Teletext-Videotex comparisons* were made by some participants who commented on the need for compatibility between the systems. Developments in the U.K. of television receivers capable of utilising both systems indicates a general acceptance of this notion. Although some librarians reacted more favourably to the teletext concept, most saw the two systems as complementary rather

than competing. Two methods of utilising teletext were discussed. Firstly, libraries could use the system to advertise and promote the libraries' facilities, services and activities. The experimental pages which the State Library of NSW has developed for Channel 7 are examples of this. Secondly, the teletext system could feed into the videotext system by cross-referencing to databases on the videotex system, by alerting viewers to changes in databases or by providing some routing and indexing information. Videotex users may find this more acceptable than paying computer connect time for similar information on the system. This latter type of usage would probably not be feasible until more than one channel is broadcasting teletext.

II.4.3 Implications of a videotex system

Having had some years of experience in dealing with the "hard" questions relating to information provision, librarians feel that resolution or at least investigation of these issues should precede the implementation of a videotex system in Australia.

a) *Copyright problems* resulting from new information technologies have not yet been satisfactorily dealt with by legislation. The time-lag occurring between new inventions and appropriate regulation has already resulted in costly "test" cases for institutions involved in, for example, photocopying and videocassette recording.

b) *Freedom of, and privacy of, information* regulations, legislation or informal agreements vary greatly between countries and states. Information which was formerly openly available and which now becomes part of a CUG's database for economic or other reasons could be a subject of contention. The requirement for government departments to make certain data or information available could also become an issue. An even more contentious area is the right of access to statistical information about videotex service usage. Experience in the U.S. with interactive cable television has shown that effective regulation is required to safeguard the interests of the person or organisation using the service. (For example, the identity of a person accessing certain non-response frames should be kept confidential.) The potential for industrial espionage or harrassment of users should be guarded against.

c) The *equity issue* is central to the continuing politically and emotionally charged debate over whether libraries should require patrons to pay for certain services. There is strong support for the continuation of the tradition of free public library service, to avoid division into the information rich and the information poor. On the other hand, it is also discriminatory to deny access to special services to those who are willing and able to pay. A videotex system would fall into the same category of contention as other computer-based retrieval services in this connection. Questions to be considered include: "Should certain groups have subsidised access with 'information stamps' as suggested in the U.S.?" "Should certain files such as community information, or health and safety information be subsidised by the government?"

d) The *social implications* of videotex should also be investigated to mitigate against undesirable effects and prepare for possible changes in lifestyle. The capability of the system to access information from a variety of places, for electronic

mail, financial transactions, and "teleshopping" will certainly have far-reaching effects on social institutions and habits. Patterns of work, transportation, and settlement could be changed. A decrease in the number of social contacts that could occur could increase the incidence of psychological problems such as depression or agoraphobia. On the other hand, the social implications may not all be negative. The increased flexibility such a system would provide may make it easier for persons to build a lifestyle better adapted to their own personality type. Working persons bogged down by the care of a home and children in addition to a full time career see the system as having great potential for freeing them to "let their fingers do the walking" for routine chores.

e) *Problems of isolation*

"Tyranny of distance" has a literal meaning for librarians concerned about the problems of distance education and the lack of adequate library facilities in small isolated communities. Benefits of the service to the geographically disadvantaged would be increased by access to the proposed domestic satellite or by a local access call availability throughout the country. In terms of receiving printed information from overseas the whole of Australia is an isolated community. Librarians, plagued by three month delays in receipt of journals from overseas by seamail or exorbitant postage for airmail subscriptions are naturally interested in the potential of electronic publishing and a related facsimile print service.

II.5 COMMENTS ON LIBRARY/VIDEOTEX STUDIES IN THE U.K. AND U.S.

(The U.K. section has been prepared by Ms Sue Nielsen as a summary of her observations and discussions in the U.K. in January/February 1981.)

The lack of freely available information on user reactions to Prestel is compounded by the delay in reporting by organisations involved in Prestel surveys. An extensive report is expected in the early months of 1981 on the ASLIB/British Library survey on Prestel and Public Libraries. Another project by LASER (London and South Eastern Library Region), will be completed in July 1981. A market survey by Communication Studies & Planning Ltd. (London) on the residential use of teletext and Prestel is also several months behind schedule.

II.5.1 ASLIB/British Library Study

This study was in two parts:

a) the potential of Prestel as a medium for community information provided by public libraries.

b) the public library as end user of the Prestel system.

Information on the first section of the study is not yet available, apart from the preliminary findings published in the 3rd International Online Information Meeting, London, Dec.4-6, 1979. Discussions with the leader of the project, Catherine Sullivan, on the second section of the study covered the following points.

"The aim of the study was to assess the impact of access to Prestel on public library reference activities by monitoring use of sets by readers and staff in six libraries over a one-year period. As well as seeking reactions of staff and readers, the study aimed to explore management implications of access to Prestel in the library such as stock acquisition, budget and space use." (1)

Reaction of librarians to Prestel

a) A major difficulty occurred in siting the Prestel terminal so that it would be prominent enough to attract user attention. This relates to the uneasiness expressed by other users of Prestel at "having a desk cluttered with terminals" if Prestel cannot be used to access other information services.

Another difficulty concerned security. Librarians did not want to impede the user but had to maintain control over the keypad. A non-detachable keypad was most satisfactory. Unless more than one television set was available, use of Prestel often interfered with use of teletext services.

b) A problem experienced but often not well articulated by librarians was the "visible" aspect of the search. Librarians unaccustomed to online services felt uncomfortable carrying out a search in front of the user. The unpredictability of the database, the time-consuming indexing system, and the difficulty of taking short cuts because of changing frame numbers and the frequent dead ends (wrong indexing information, unsatisfactory information) caused many librarians to feel that the negative reactions to the user would be transferred to the librarian and library service as well as reflecting on the effectiveness of the whole Prestel system.

c) Because of these problems librarians generally did not consult the system except as a last resort. Experimental and enthusiastic use of Prestel was confined to one or two members of staff in each library who tended to embrace new technology and had similar interests in other fields (e.g. home computer enthusiasts). The librarians' opinions of the new service tended to improve with increased use of the system and diversification of the database.

User reactions to Prestel

Predictably, the most enthusiastic and consistent users were young people, students, and to a lesser extent professional and business people accustomed to similar technology.

Data available at the end of the study indicated 33% of users were very impressed with the service and over 50% reacted favourably. The reaction, particularly the initial reaction, of users browsing through the service with no specific information need may relate to the opinion of a member of staff at Communication Studies & Planning Ltd. - that many non-information conscious people will view the system in the same light as videogames and other

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(1) 'Cinderella riding a bicycle? Prestel - the public library role' by C. Sullivan. In 3rd Intern'l Online Information Meeting papers. London, Learned Information, 1979. p.306.

electronic toys. A survey by the company on teletext use did indicate that most users purchased the decoder purely for its novelty, although after several months it had become used as an information retrieval device and had heightened the user's awareness of information.

This reinforces the often expressed opinion in the U.K. that teletext and videotex equipment will have to compete with quite dissimilar electronic products designed for home entertainment, unless a major marketing drive is initiated to increase awareness of the purpose of the service. A summary by British Telecom in 1980 showed an increase from 12% to 29% of awareness of the service.

II.5.2 LASER Prestel study

This study is mainly concerned with librarians as IPs of local and community information. The study will also monitor the use made of 32 Prestel terminals placed in public libraries and information centres. LASER is acting as an umbrella organisation. 2,000 frames of community and local information are currently provided but funds for the continuation of the service are not assured. As an IP, LASER staff are particularly concerned about the following factors in both their own and other databases:

a) *The quality of routing information*

A major disadvantage is the number of indexing frames users are required to access before reaching any "hard" information. The quality and extent of information given on these frames is widely criticised, since a lack of explanation can lead users to irrelevant information and dead ends. The initial frames provided by British Telecom were heavily criticised in this regard.

b) *Consistency of routing information*

So that the user does not have to continually refer to the initial index pages, there should be consistency of routing information and repetition of this information on "hard" information frames.

c) *Routing to other databases*

Although it was realised this was not practical for commerical IPs, it was generally felt that public service information should include cross-references.

In the above respects the frames provided by LASER did appear to be quite superior to those of many other IPs. LASER staff were also critical of the guidance given to them by Prestel on formatting, routing, etc.

Some librarians still feel their main role as IPs is to enable access to community information in the home. Therefore there is considerable disappointment that the domestic market potential has not been fully exploited and that British Telecom has switched its attention for the time being almost exclusively to the business market.

It is felt that the initial cost of the videotex equipment was not the main factor in discouraging residential use, since a very high percentage of British TV sets are rented and updating is therefore less costly. The cost of usage by the average family was

estimated at 10 per month. This was seen as the major impediment.

II.5.3 CHANNEL 2000

(Because this test was running concurrently in the U.S. the project team was unable to obtain information or results for inclusion in the original report. As Channel 2000 is the most comprehensive test to date of library involvement in the provision of videotex services the research is very significant. We are grateful to the Research Department, OCLC Online Computer Library Center, Dublin, Ohio for permission for Marge Broward to prepare this summary. The information and direct quotations are drawn from the CHANNEL 2000 Project Report published in April, 1981. OCLC is to be commended not only for the prompt publication of their report but for the concise description of methodology and findings.)

Purpose and methodology

One of the objectives of OCLC at its founding in 1967 was to deliver information to users when and where they want it. In 1977 a Research Department was established, with one of its major programs dealing with the home delivery of library services. Having identified viewdata as a promising technology for libraries and library patrons they concluded that if OCLC and libraries wanted to understand it, an in-house system would have to be developed. By late 1979 a proposal was submitted to OCLC management with the following goals:

- 'develop and test a library electronic home information system
- quantify potential user demand for the attitudes toward the system
- identify additional information services for possible future implementation
- evaluate the existing environment and potential competition
- determine the social issues involved
- examine the role of libraries in the evolving market place.'

A system was developed and a test conducted in October, November, and December, 1980 in 200 households in Columbus, Ohio. OCLC selected 100 test households using a randomised quota selection procedure. The other 100 households were selected by BANK ONE who participated in the test to demonstrate banking services in the home. Test households were provided with a decoder with a keypad and associated wiring, an Installation Guide (to assist in attaching the CHANNEL 2000 decoder to their own, unmodified tv set) and a User Manual. Three methods of data collection were used: transaction logs which recorded the keystrokes of each user; questionnaires, given to each user in each household before, during, and after the test, which covered demographic and life-style information, opinion leadership, and attitudes toward CHANNEL 2000; and six focus-group interviews.

Services offered

Almost 2 million index and information screens were available on the system. With the exception of the banking services users were offered a collection of information services representative of those which might be offered through a library. The two largest databases were the CHANNEL 2000 Library Catalog, a 300,000 record computerised version of the Public Library of Columbus and Franklin County catalog, and a Video Encyclopedia containing the full text of the *Academic American Encyclopedia*, a 27 volume work published by Arete. The Library Catalog could be searched by author, title or subject; loan requests made online were fulfilled by mail delivery direct to the user's home. The encyclopedia database contained 32,000 articles varying in length from one to over 300 screens of text, with three separate indexes. There were seven databases in all. In addition to the catalog and encyclopedia there were two educational services developed by the College of Education at Ohio State University - Math That Counts (exercises for teaching children basic maths) and Early Reader (designed to help parents teach pre-school children to read.); a Public Information Service, containing information drawn from city, state, and private sources about employment, environment, parks, public utilities and similar topics; and the Community Calendar, compiled by the Columbus Chamber of Commerce - a calendar of local education and entertainment events.

The Home Banking Service allowed users to pay bills, view current interest rates, and view their checking and savings account balances and transaction lists for the current or previous month.

Special features included in the system were an online help capability, electronic messages, a capability for scanning data screens which simulated the favorite library pastime of browsing, and Bookmark, designed to allow the user to return to the screen being viewed at the end of the previous session.

The CHANNEL 2000 computer CPU was Xerox/Honeywell Sigma 7 which included 512 kilobytes of main memory, 1.3 gigabytes of storage on 18 moving-head magnetic disk drives, and 56 telephone lines operating at 30 ch/sec.

Evaluation of results

Ease of use and low cost were the two primary design considerations for both hardware and software configurations. The following statements indicate the result of the responses to some of the questions:

- 85% of users felt they understood operating procedures for the system
- Banking Services, the Video Encyclopedia, and Public Information ranked highest in ease of use
- 89% of users felt that CHANNEL 2000 was easy to connect but over half of the users felt strongly that the service should not involve their telephone
- Public Information, Library Catalog and Banking Services ranked highest in terms of usefulness

- Video Encyclopedia, Library Catalog, and Home Banking were the top three when services were ranked according to the likelihood that the users would pay money to have that service in their homes

- 63% of the test population stated that they would probably subscribe and pay for a viewdata library service.

- People most interested in purchasing the service tend to be young, affluent, and well educated - and already library users.

Conclusions (Direct quotations taken from p.2, 20-21)

"Libraries will play an increasingly dynamic role in meeting consumer demand for information. Libraries, focal points of information collection, organisation, and dissemination in their communities, are moving toward delivery of services to patrons via electronics and computers. Broadcast and cable television programming, online data base access, personal computers, and even electronic games are currently offered by innovative libraries. Advances in computer and communications technology offer many alternatives for remote electronic delivery of information by librarians.

"As consumers search for ways to secure more discretionary time, as a complex environment demands more informed decision-making, and as social change promotes immediate gratification, consumers will use services which best support their changing lifestyles.

"By meeting these changing needs, libraries can become a community resource in more and different ways than previously envisioned. While library effectiveness may be measured less in terms of patron visits and more in terms of viewdata system access, no overwhelming change in paper-medium-based services is envisioned for the near future.

"Libraries now stand on the threshold of great opportunities. Emerging electronic technologies provide the potential for a new age of community service in which the library can command new attention and financial support as an information resource serving the survival, growth and recreational needs of Everyman. Despite their traditional conservative nature, even despite increasingly difficult economic conditions, libraries can achieve a leadership role in meeting individual information needs. ... As its patrons accelerate into the future, libraries must as well. The alternative is irrelevance. And irrelevant institutions disappear.

"By bringing the reference function of the library directly into the patron's home, dormitory, or office via viewdata, the 'energy barrier' associated with awareness and use of the library is removed. An enhanced viewdata system, perhaps in a hybrid form permitting patron access to extensive data bases, mediated by professional reference specialists, could in effect result in a 'distributed library system'.

"... Public participation in library systems will increase only in proportion to the convenience of such participation. The substitution of communication for transportation provides an increased convenience sufficient to ensure more frequent selection of the library as a choice for satisfaction of information needs.

Serious attempts to meet those needs will, in turn, ensure continuing relevance of libraries and their services.

"... The conclusions are positive. Libraries have an opportunity to play a plenary role in evolving viewdata services."

III SUMMARY AND CONCLUSIONS

The history of many telecommunication innovations indicates that the initial uses may be very different from the uses for those same devices in subsequent years. The initial uses must fit into the existing social framework and existing habits of the users to a great extent; otherwise rejection of the entire concept is possible. In examining the new medium of videotex the project team tried to focus on those initial uses which will fit most easily into existing frameworks or habits.

III.1 WITH RESPECT TO THE LIBRARY COMMUNITY

III.1.1 Librarians were intrigued initially by the A to Z range of subjects represented by the IP list but disappointed when a search for specific answers yielded many "nearly" responses rather than the exact fact needed.

In assessing the existing Prestel databases the same criteria were used as for any other information source - accuracy, currency, lack of bias, and depth of subject coverage. On all accounts the system fell short of expectations.

III.1.2 Input of the data in the question collection segment of the study was influenced by seasonal variations in the volume of queries and by the distancing of the librarian and end user from the videotex terminal. Of the 303 questions submitted, three-fourths fell within the subject categories of books and reference, business, government information (federal, state & local) and holiday/travel. The assumption was made that the major usage of videotex for reference work would be for answering questions ordinarily located in the directory/almanac/handbook type of source book. About 75% of the questions did fall within this category. The remainder of the questions were of the research type, derived from retrospective files.

Although the success rate in ths study was much lower than the 50% some British libraries are experiencing, the high proportion of questions which had to be transposed to the British context made accurate measurement impossible. The specificity required for a satisfactory reply was frequently lacking. Prestel is not encyclopaedic and the person seeking a precise piece of information may be disappointed by the depth of coverage and the inadequate documentation of the scope of the files. Nevertheless, librarians see the videotex system as having the potential to be a useful supplement to the reference collection in a large library. For the small community or branch library with a limited collection of mainly out-dated reference materials it could add a new dimension to the quality of service provided. The placement of coin-operated machines in libraries could be a stimulus to attract users who currently view the public library as having little relevance to their information needs.

III.1.3 In the role of IP, libraries see their major strength being in the provision of community information files. Many libraries already hold extensive collections of information on

social welfare, legal and consumer agencies, housing, education and local government services. Assistance can be gained from further liaison with the projects in England where librarians are already involved as IPs for community and local information databases.

III.1.4 Less interest was expressed by librarians in the Closed User Group concept. This may have been partly due to the more immediate interest in, and problems of, grasping the scope and nature of the databases on Prestel. Several applications of interest include materials circulation and inter-library loan, staff information and in-service training.

The role of videotex in relation to existing information utilities would need investigation. Institutions such as the National Library and the State libraries, and library networks such as CLANN (NSW) and CAVAL (Vic.) would probably be required to provide guidelines and assistance for the establishment of CUGs for libraries.

III.2 GENERAL COMMENTS

III.2.1 The problem of deciding what type of medium videotex is (promotional, publishing, or information retrieval, or all three) will be determined by the users in the long run when market "pull" becomes more evident. In the short run the problem of understanding the system and explaining its potential remains. The policies established by the operating organisation will vitally affect the growth of the system and the direction in which it moves.

III.2.2 The proper positioning of a videotex system within the information industry configuration is essential. Once this share-of-the-market stance has been determined the marketing strategy becomes the critical factor for the IPs, equipment suppliers and operating body. It is likely that there will be a back-lash against videotex if the initial system is insufficiently developed to meet user demands. As the level of awareness of new technologies rises in a community, the demand for more sophisticated services, equipment, information, etc. rises correspondingly.

III.2.3 The participants' reactions to videotex were closely tied to what they saw on the existing Prestel systems. It is expected that critical comments relating to indexing, routing, and content will be valuable in avoiding short-comings when planning a videotex system for Australia. IPs should be aware of the impact on file design of the common inability of the requestor to articulate the question adequately in a face-to-face situation or to an information system. Suggestions for an Australian system included major points of concern such as frequency of updating, printout capability, and the need for flexibility for interfacing with related office equipment as well as world-wide videotex and other computer-based systems.

III.2.4 Participants in the study tended to view the system as a whole. Therefore, the weakness of one IP or one aspect of the service will affect the user's perception of the whole system. The necessity for self-regulation by a group with objectives such as those of the Association of Viewdata Information Providers, Ltd. is obvious.

III.2.5 Information providers and information users would expect to be given a statement of intention by the operating body concerning the investigation of problems relating to copyright, privacy, freedom of information, and social consequences of the videotex system.

III.3 FURTHER RESEARCH

III.3.1 More specific studies are needed of particular groups in terms of their information needs and how they actually utilise information in their decision-making processes. Such studies would have implications for both marketing strategies and the decisions of individual information providers.

III.3.2 A mini-research project might be undertaken at the National Library to evaluate the performance of the videotex databases against traditional library sources under controlled conditions. Using a pre-determined set of questions and careful measurement procedures, valuable costing information could be collected. Such data would be useful for libraries in determining budget allocations, or for IPs in assessing the viability of transferring from print to electronic publication.

APPENDIX A: INTERACTIVE VIDEOTEX STUDY DATA COLLECTION FORM

LIBRARY:----------

DATE:----------

QUESTION:----------

NAME(S) OF SOURCE(S) SEARCHED: 1.----------

(printed, information service, etc.) 2.----------

3.----------

APPROXIMATE SEARCH TIME (tick appropriate line):

Less than five minutes ---------

5 to 15 minutes ---------

More than 15 minutes ---------

BRIEF SUMMARY OF ANSWER OR COMMENTS ON QUESTION IF NOT ANSWERED:----

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EVALUATION OF ANSWER (circle appropriate numbers):

	Satisfactory				Unsatisfactory
Accuracy/currency	5	4	3	2	1
Completeness	5	4	3	2	1
Lack of bias	5	4	3	2	1

INTERACTIVE VIDEOTEX STUDY *For office use only*

QUESTION CLASSIFICATION:

---------- Current Subject----------

---------- Retrospective

SERVICE CONSULTED:

---------- PIMT

---------- BP

PIMT TOPIC/IP:----------

OTHER HEADINGS SEARCHED:----------

BRIEF SUMMARY OF ANSWER OR COMMENTS ON SEARCH:----------

BP TOPIC/IP:----------

OTHER HEADINGS SEARCHED:----------

BRIEF SUMMARY OF ANSWER OR COMMENTS ON SEARCH:----------

QUESTION REPHRASED IN BRITISH CONTEXT (if applicable):

APPROXIMATE SEARCH TIME: ---------- minutes PIMT

---------- minutes BP

COST OF FRAMES CONSULTED: ---------- p PIMT

---------- p BP

EVALUATION OF ANSWERS: (circle appropriate number)

PIMT						*BP*				
Sat.				Unsat.		Sat.				Unsat.
5	4	3	2	1	accuracy/currency	5	4	3	2	1
5	4	3	2	1	completeness	5	4	3	2	1
5	4	3	2	1	lack of bias	5	4	3	2	1

APPENDIX B: SELECTED BIBLIOGRAPHY

The pages of online information available via videotex systems are morethan matched by the pages and pages of print in books, journal articles and conference papers, explaining the hows, whys, and wherefore's of videotex as an information medium. Systems are discussed in the planning stages, the market trial tests, and the operational phases. Not content with describing the status quo, some authors project either glorious scenarios for the future or visions of gloom and doom.

Computer searches run against six DIALOG files yielded over 400 references covering the years 1978 through 1980. The files searched were ABI/INFORM, PROMT, PTS PREDALERT, LISA, SCISEARCH, and INSPEC. Articles dealing with technical aspects of development work as well as most articles written by British Telecom staff have been omitted. For the most part repetitious and simplistic reports were eliminated although a few have been included in the business section to give an indication of the type of information on videotex which is appearing in the business press.

Only a small selection of references which seem most applicable to the scope of this report have been chosen for inclusion. The citations have been listed according to broad topic areas.

There are four monographs which cover the topic in a general way from history through applications:

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CONFERENCE/SEMINAR PROCEEDINGS/PAPERS

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Two journals which have devoted complete issues to the subject of videotex are:

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VIDEOTEX AND LIBRARIES: AN ASSESSMENT BY THE NATIONAL LIBRARY OF AUSTRALIA

MAY 1981

BACKGROUND

Early in 1980 the National Library of Australia accepted an invitation to take part in an international trial of the Prestel information system developed and owned by British Telecom. A special Prestel terminal was installed in the National Library for demonstration and assessment of the system during the period from August 1980 to September 1981. A small study team was appointed to carry out the evaluation.

Demonstrations of Prestel International have been given to various groups from within and outside the Library. These included a series of public demonstrations given during Information Technology Week, 4-8 August, 1980. It was decided to seek access to British Prestel as well as to Prestel International, as it was believed that most of the applications of interest to the library community were to be found in the former rather than the latter. Use of British Prestel has had to be carefully rationed, however, as the National Library has to pay the full telecommunications charge of $2.00 per minute when using the British system, whereas use of Prestel International was subsidised by British Telecom.

During October 1980 a special series of demonstrations was given to National Library and Canberra Public Library Service staff with the aim of assessing the value of this kind of service both for the National Library and for public libraries.

OBJECTIVES

The main objectives of the assessment were:

(a) to try to determine the usefulness or otherwise of videotex services (including any future Australian system) as information sources for the National Library and for public libraries;

(b) to consider how the National Library of Australia might use a future Australian videotex system as a vehicle for its services and announcements.

METHOD

All senior staff of the National Library concerned with the Library's public services or publications were invited to attend one of the demonstrations. These were conducted in a fairly informal way, and included some examination of:

(a) ready reference material on Prestel International and British Prestel;

(b) bibliographic information on British Prestel;

(c) information about the British Library on British Prestel.

This was followed by a question and discussion session, with further interrogation of the system as the need arose.

During the previous year the National Library's role as a potential videotex information provider had been discussed at various committee meetings, and a list of suggestions compiled. (These were not firm proposals, but simply starting points for

discussion). This list was circulated before the demonstrations. About 25 senior staff attended the demonstrations and were invited to submit comments in writing as well as taking part in the discussion sessions. Written comments were received from 12 participants. Demonstrations have been given to an additional 12 staff from reference sections of the Library at various times.

In practice it has proved very difficult to access British Prestel. The failure rate when attempting to dial into British Prestel has been about 15 times as high as when dialling into Prestel International.

DISCUSSION: PRESTEL AS AN INFORMATION SOURCE

National Library Use

Few participants were convinced after the demonstrations that Prestel offered many advantages for the National Library over the existing online and printed sources. It should be emphasised here that we are considering Prestel as a working tool for the Library - not for the home or for the office.

Participants' opinions may be summarised as follows:

(a) There is little useful information in British Prestel which is not in Prestel International.

(b) Neither British Prestel nor Prestel International are as current as some existing sources.

(c) Prestel contains less comprehensive company information than other sources.

(d) There is little in Prestel of interest to the specialist sections of the Library.

There was a strong feeling that much of the information in Prestel (e.g. the travel files, which have been successful in Britain) is not often required in libraries, and when it is, is already easily obtainable. In many cases the factual information in Prestel appeared to duplicate existing sources but adds very little. For example, commodity and stock exchange information is available from organisations such as IP Sharp through a conventional terminal, with the added advantage that the user can carry out statistical analysis online.

In summary, there was a stong opinon that Prestel should not receive very high priority in expenditure on information sources.

Public Library Use

The above comments apply specifically to National Library use of the system. Some participants believed that community and welfare information provided through a Prestel terminal could be quite useful in a public library, as could some of the other information.

Bibliographic Information

The above comments apply to Prestel as a factual information service. Reaction to the use of Prestel as a vehicle for bibliographic information was on the whole less favourable. Here

it was felt that the severe limitations of the search system rendered it quite unable to compete with the subject searching facilities offered by the bibliographic retrieval systems already available internationally. Designed originally for home use, to be operated by a simple keypad, Prestel allows no Boolean logic, let alone positional qualifiers. It works with a simple 'tree structure' which does not represent a systematic classification of the subject matter. It is designed to retrieve particular pieces of information, not classes of information. It is fairly effective with certain kinds of factual information, but in other cases it can be very cumbersome. It is not suited to multi-faceted subject matter.

No matter how 'friendly' the system may appear to be to the user, this is of little value if it cannot cope with the demands of bibliographic subject searching.

It was also the general opinion of participants that the market for bibliographic information was much smaller than the market for factual information. This made it even more unlikely that Prestel could become a suitable medium for such services.

DISCUSSION: PRESTEL AS A VEHICLE FOR NATIONAL LIBRARY INFORMATION

National Library Services

The limitations which were seen to apply to the existing bibliographic information on Prestel were also seen as a barrier to using a Prestel-style Australian videotex system as a vehicle for the National Library's own services. Unless an Australian system were developed with a much more sophisticated search language, it could not become a competitor to AUSINET as a medium for offering ANB, APAIS and AUSTRE to the public. Nor was Prestel seen as suited to files such as union catalogues. The 'tree-structure' approach to searching massive files would be very cumbersome. If a future Australian videotex system uses the British software, any bibliographic files on it will suffer from the same limitations. However, participants saw some possible applications for material which is intended to be scanned, rather than searched. This could include National Library publications such as *Australian books* and the *Acquisitions newsletter*.

Publicity

A possible use of an Australian videotex system would be the provision of a directory of National Library services. However, the great majority of participants in the evaluation cosidered that service information is much more economically disseminated through brochures, either general or specific.

Whether videotex would be an effective new publicity medium would depend on its success in capturing a significant market. In the United Kingdom, the growth in the number of Prestel subscribers has been much less rapid than was hoped. At the end of 1980 there were about 6000 subscribers. There seems no reason to believe that the growth rate of an Australian videotex market would be much higher. At the most, publicity via videotex would supplement in a small way what we do by other means. Whether it would be worth the effort and expense would depend on the charging structure.

POTENTIAL

The criticisms of Prestel recorded in this report have been limited to its usefulness to the National Library as an information source and as a vehicle for National Library services and publicity. As far as content is concerned, two questions remain open:

(a) whether Prestel may yet develop into a useful ready reference tool for the National Library;

(b) whether the proposed Australian videotex system will offer more useful and more timely information.

The study team has not been directly concerned with the value of videotex as a home or office information system but, as this issue has some relevance to the Library's possible role as an information provider, some consideration of it seems necessary.

It has already been noted that the growth of Prestel in Britain has been well below earlier expectations. The shortfall has been particularly acute in the domestic market. This has led to a change in the marketing approach which is now more directed to the business applications of Prestel. One consequence of this has been that Prestel terminals have tended to be provided with full alpha-numeric keyboards rather than merely the simple calculator style pad and have remained expensive. The terminal rented by the Library without a printer costs as much in a year ($2500) as the outright purchase of a conventional computer terminal with printer. There is still no sign of the cheap ($100 - $200) decoder/modem which can be attached to a television set. Clearly, potential manufacturers are not yet convinced that there is a large domestic market and without this, despite the worldwide interest in videotex systems, their ultimate success and audience remains uncertain. In this environment it does not seem advisable for libraries to adopt other than a wait and see attitude. Given a known market, The National Library and similar organisations may be able to design appropriate products, but it is unlikely that they would materially help to create a market.

There must also remain significant doubt as to whether it is videotex technology that will be used as the vehicle for developing personal information systems. Personal microcomputers have made a much greater market impact world wide than videotex terminals and the microcomputers can fairly easily be adapted to function as intelligent terminals. Although it, too, has not been an unqualified success, the *Source* in the United States seems to be directed at this market and to carry information similar to that offered by videotex systems. The *Source* uses software more like conventional information retrieval systems than like Prestel and consequently is vastly more flexible. In addition, the system can be accessed by teletype compatible terminals and therefore allows online printing. As most reference service involves some kind of printing or copying of information for the inquirer to take away, this is a most important consideration for libraries. While Prestel terminals can have a printer attached, these can only function as screen copiers with the loss of colour and such an arrangement would bring the cost of a terminal to significantly more than that of a teletype. It should also be borne in mind that while many libraries now have teletype terminals, most do not have television sets, and if they do acquire them, there is no

indication that the cheap external modems originally promised will ever become available.

FURTHER EVALUATION

Despite these misgivings and uncertainties about the future of videotex services, it is desirable for a more systematic evaluation of Prestel's potential in reference work to be undertaken.

CONCLUSIONS AND RECOMMENDATIONS

1. On the present evidence, Prestel is of some limited use to the National Library as a source of factual information.

2. Prestel as presently constituted offers almost no potential as a vehicle for bibliographic information.

3. The National Library should use the proposed Australian videotex system for announcement and publicity material if the costs incurred are commensurate with its effectiveness.

4. The Library should consider using the Australian videotex system as a medium for material which is meant to be scanned rather than searched in detail.

5. Further developments in this field should continue to be monitored by the Innovative Technology Group.